Schema Theory : A Significant role in ESL/EFL Reading Instruction

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Introduction

One of the most important and needed skills for ESL (English as a second language) and EFL (English as a foreign language) learners is undoubtedly reading. With the reading skill, they will be able to read various texts and other reading materials. Besides, such skill can be employed when they surf the Internet, a hot world wide access in today's world. Namely, the skill can expose them to experience the new and unlimited world of information and knowledge. The more they possess such ability, the more likely they are to expand their horizon. Reading is, therefore, considered worthy and should be given a high priority on.

In the field of reading instruction, the role of background knowledge is significant ; hence formalized as "schema theory". The schema theory is described as the process in which readers combine their background knowledge and experiences with the information in the text to aid their comprehension (Scott, 2001). In this paper, schema theory and its implications will be discussed. The discussion will be divided into three major parts : the schemata (plural of schema) in reading process models ; the schema theory model ; and application of the schema theory in reading instruction.

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1. The schemata in reading process models

Reading is an active and fluent process. In constructing meaning, involvement of both readers and reading materials is required. A reading success takes place when the words in the text are combined with the readers' background knowledge and experiences (Anderson, 1999).

In order to account for the approach of the process of reading, different explanations have been widely presented. As Anderson (1999) points out, the focus of a great number of research studies has been on how people make sense of printed materials and models of the reading process have emerged from research of Goodman (1973, 1976), Gough (1985), Rumelhart (1985) and Stanovich (1980). Here, attention will be directed to three approaches : the bottom-up, the top-down, and the interactive models.

Bottom-up models

Bottom-up models, also called data-driven models by Anderson (1999) and text-based processing by Carrell and Grabe (2002), involves a "lower-level" reading practice. First and foremost, they depend on the information displayed in the text. The models in this approach are perceived as a conventional way of describing the process of reading. Nunan (1999) notes that the bottom-up approach views reading as a process of decoding individual linguistic units from the smallest units to the largest ones. In other words, the information presented by the text is processed from letter features to letters to words to meaning. Even so, counterfactual evidence with reference to human memory has been provided in human memory research. It states that reading will be slowed down in a way when processing every letter in a text, and thus retaining meaning will be very difficult (Nunan, 2000). Moreover, Smith (as cited in Nunan, 2000) stresses that if the context is not to be understood, knowing how upcoming letters and words should be sounded out is often impossible. Rather, as characterized by Goodman (1970), reading is as "a psycholinguistic guessing games". With such an idea, Goodman and Smith (as cited in Wallace, 2001) claim that the reading ɔcess is closely related to the readers' ability to make informed predictions as they progress ɹh the text. The models underlined in this process are known as the top-down approach.

Top-down models

Top-down models, alternatively called conceptually-driven or knowledge based processing by Carrell (2002), are viewed as psycholinguistic models with a heavy emphasis on making predictions as going through the text. According to Goodman (1973), an obvious definition is demonstrated in these terms:

"...the reader does not use all the information available to him. Reading is a process in which the reader picks and chooses from the available information only enough to select and predict language structure which is decodable. It is not in any sense a precise perceptual process."

Regarded as the higher-level processes, the top-down models are explained by Segalowitz, Poulsen, and Komoda (1991) below.

"...Higher level is concerned primarily with integration of textual information and includes resolving ambiguities in the text, linking words with their co-referents, integrating propositional units across sentences, generating and updating a schema or representation of the text as a whole, and integrating textual information with prior knowledge."

However, Eskey (2002) raises questions about the top-down models for ESL/EFL learners. It is argued that this approach seems to be more suitable for skillful readers, not for developing readers- like most ESL/EFL readers. More importantly, threshold level of them is to be taken into a serious consideration as well. This, consequently, leads to a compromise between bottom-up and top-down approaches, the interactive approach.

Interactive models

The interactive models are mentioned by Anderson (1999) as "the most comprehensive description of the reading process". They combine both bottom-up and top-down models. What is more, both of them interact constantly. Eskey (2002) asserts that to be good readers they must be both good decoders and good interpreters of texts. When their reading skills develop, the decoding skills of them will be more automatic, yet remaining their significance. Stanovich (1980) also argues that in the interactive models

"process at any level can compensate for deficiencies at any other level... Higher processes can actually compensate for deficiencies in lower-level processes" (quoted in Anderson, 1999).

Concerning the interactive models, Grabe (1991) emphasizes two interactive conceptions. The first is pertaining to the interaction between the readers and the texts being read. The meaning the readers gain does not simply reside on the text only. To comprehend the meaning, they must interact with their background knowledge, too. The second conception of the interactive models involves the interaction between the bottom-up models and the top-down models, therefore the interactive models. Decoding and interpretation skills are necessary if fluent reading is perceived as a goal.

Needless to say, the first two approaches have their own strengths and limitations. Then, the third seems to be more appropriate as it helps create a better balance of the reading process. Now, after each of the approaches are cited, it comes to the question of "How are the schemata related to such approaches ?".

When the schema or the background knowledge is taken into account, it is of paramount importance to restate that this is a major role in reading comprehension. And its theory calls for both the bottom-up and the top-down information processing models, hence the interactive models. In order to comprehend the text, the readers are to contain formal schemata (background knowledge of the structures of the given text) and content schemata (background knowledge of the content area of the text given). As earlier stated, the schemata underpinning in both models interact to each other, based on the interactive model approach. When insufficiency of a certain schema is found in comprehending a text, for instance a syntactic deficiency, background knowledge can probably compensate for such deficiency (Coady , 1979, as cited in Carrell, 2002).

2. The Schema theory model

Schemata are roughly defined as the organized background knowledge. They are, according to Barlett (1932), regarded as a constructive process. That is, to construct people's mental representation, the information from the encountered discourse and their knowledge from past experience related to such discourse are used.

In the field of reading, the schema or background knowledge influences reading comprehension. The background knowledge of the readers, as Anderson (1999) mentions, can be life experiences, educational experiences, knowledge of how tests can be organized rhetorically, knowledge of how one's first language works, knowledge of how the second language works, and cultural background and knowledge.

On the basis of the schema theory model, the readers combine their background or previous knowledge with information in a text so as to gain comprehension. When they try relating what they already know about the topic to the facts and ideas appearing in the text, a level of their text comprehension tends to be increased. According to the theory, the comprehension is an interactive process between the readers' background knowledge and the text. In this respect, the concentration is not merely on the text. This is rather against the traditional concept of the reading process. Traditionally, reading researchers has paid great attention to the language to be comprehended, not to the readers who are to comprehend the text. But increasingly as the schema theory has been recognized and has deserved a place in assisting the reading comprehension process, a growing number of research studies concerning this are the undoubted results.

According to Singhal (1998), the schemata can be classified into three types: content, formal, and linguistic or language. The first type is called content schemata. They are pertaining to background knowledge or world knowledge of the readers. Another type is the formal schemata. They are sometimes known as textual schemata. These schemata are regarding organizational forms and rhetorical structures of written texts. In schema theory research, the two types are frequently contrasted. While the first is of special concern to content schematic knowledge, namely the content area of the text; the other is in connection with differences among rhetorical structures. To illustrate the distinction, text of a simple story on Songkran Day given to Japanese readers can be taken as an example. The formal schemata for the simple story the readers probably have may include the information that the story should have, such as a setting, a beginning, a development, and an ending. As for the content schemata, they may contain some information about the festival, for example, they may possible know where it takes place, what people do in this festival, and so forth. It is often perceived that lack of the content schemata is usually caused by the fact that the content areas are culturally

specific and not part of their cultural background (Carrell and Eisterhold, 1983). And the last type to be mentioned is the linguistic or language schemata. They include the decoding features needed to recognize words and how they fit together in a sentence.

Towards the point that some of the background knowledge ESL/EFL readers bring to the text is culturally specific, Hudson (1982) notes the relevant statements as follows.

"... the reading problems of the second language readers are not due to an absence of attempts at fitting and providing specific schemata... Rather, the problem lies in projecting appropriate schemata."

In the above statements, appropriateness of schemata is taken into consideration. Reading goals may not be successfully obtained if the appropriate existing schemata cannot be accessed, or if the reader himself does not contain the appropriate schemata conducive and essential to comprehend the text (Carrell and Eisterhold, 1983).

3. Application of schema theory in reading instruction

After the reading process approaches and the schema theory have been discussed, it comes to the appropriate time to consider such matters in reading instruction. Clearly, prior to the reading, existing schemata of learners need to be activated to facilitate comprehension of a written text. The activation of applicable schemata is usually operated in pre-reading activities. Ringler and Weber (1984) call the pre-reading activities as "enabling activities. It is simply because the readers can be provided with necessary background in order to comprehend the material. They state that when doing the pre-reading activities, the teachers can elicit the readers' prior knowledge, build essential background, and focus attention.

Based on Murtagh's study (1989), it is believed that there is a tendency that appropriate schemata induced through suitable pre-reading activities greatly benefits the readers. Additionally, there are numerous ways that such schemata may be constructed. Carrell (1988) proposes such of them as demonstrations, visual aids, lectures, real-life experiences, discussion, role-play, text previewing, introduction and discussion of key vocabulary items, etc. Yet, different teachers may have different formats on prior knowledge activation. For example, some reading teachers probably prefer to employ "semantic mappings" where all of the students

are asked to share key vocabulary items or their ideas in relation to the reading content. For instance, these are the kinds of associations that are probably called up by the key word hospital : "doctor", "nurse", "patient", "die", "ill", "medicine", etc. After brainstorming, the teachers may classify and subclassify these words and draw a conclusion leading to the text content so that the readers will be encouraged to link the ideas and concepts they already know to the new concept that will be learned. The semantic mapping style is attractive to them since it requires little teacher preparation and allows the learners or readers great freedom to help one another brainstorm words related to the topic. Another example is the use of a technique called by Dubin and Bycina (as cited in Anderson, 1999) as "anticipated guides". With such technique, the readers can make a great use of questioning. Nonetheless, in doing the pre-reading activities the teachers can also generate the questions. The schema activation can be varied and different schema activation activities can be used in the same text. Used appropriately, they benefit the learners to some or even a great extent in their reading. However, these pre-reading activities may, from time to time, inadequate. So, teachers are required to help provide their learners with additional or needed information. Notably, it should be stated that good schema activation and establishment can help enhance their motivation in reading in a way.

Nevertheless, a number of cases in which some learners do not have any prior knowledge to be activated prevail. For such learners, Anderson (1999) recommends that the teacher must provide them with adequate background knowledge before having them read. For example, they lack previous knowledge on inflation in an economic text, hence the lack of related vocabulary. To cope with the difficulty they are faced with, the teachers are able to help them by establishing some knowledge and relevant vocabulary. This is in line with the idea expressed by Carrell (1988) that "pre-reading activities must accomplish both goals : building new background knowledge as well as activating existing background knowledge". Simply put, the teachers are not only to activate but also to construct the schemata of the learners. In some cases, a critical thinking can be advantageously exploited in the schema construction. A number of problem solving activities are created for the readers. In the activities, there will be situations they are required to analyze an ambiguous text. By and by as they go through the text, their critical thinking will enable them to weigh alternative interpretation, put some out of their mind, consider their decision making process to evaluate multiple

possibilities ; or accept the information they examine as being reasonable. This critical thinking process will let them modify or extend their existing knowledge for target concepts.

As mentioned earlier, many of the reading difficulties are caused by cultural differences. In the reading instruction, another major role of the reading teachers is to decrease such difficulties and simultaneously increase the learners' reading comprehension. Therefore, it is necessary for them to supply the learners with information connected to the culture found in the reading text. The focus on culturally specific matters is shown in Goodman (1979)'s study. Below are his statements.

"...even highly effective readers are severely limited in comprehension of texts by what they already know before they read. The author may influence the comprehensibility of a text particularly for specific targeted audiences. But no author can completely compensate in writing for the range of differences among all potential readers of a given text."

Not only do the cultural differences affect the reading comprehension, other variables such as individual differences and varied attitudes and values can also bring about misconceptions of the selected reading text contents. These conceptions can hinder comprehension. It implies that every author cannot compensate for such differences among the readers. Again, another role of the teachers is shifted. Apart from being schema activators and providers, they need to act as correctors as well. In such a case, Anderson (1999) indicates that before achieving reading comprehension, the learners' background knowledge may need to be corrected by the reading teachers. And no doubt, this can be done through good and well prepared pre-reading activities.

Conclusion

The influence of the schema theory on reading is apparent. In the reading instruction, the theory is proved highly beneficial to be taken advantage of. For the ESL and EFL readers or learners, in particular, the schema activation, construction, and correction are of the utmost importance since all of them will comprehension of the readers. Besides creating a better understanding of the text, pre-reading activities can, on condition that the activities are well-prepared and the readers' participation is fully fostered, enhance English friendly environment for their learning. As for the reading teachers, preparation of reading instruction may take time, especially in the stage of pre-reading activities. Sometimes the teachers have

to fill in some missing or weak background knowledge the learners bring to the classroom. If a constant effort is maintained, the rewards are unquestionably tremendous. This is worth attempting. However; even though the role of the schema or background knowledge significantly stands out in the reading instruction, other aspects such as reading strategies, reading rate, motivation and so forth play their crucial roles as well.

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